

a1  
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wherein said reflected component of said projected EMR has a wavelength different than said self-emitted, dominant EMR spectrum such that the reflected component can be distinguished from said self-emitted EMR based on wavelength, said projected electromagnetic radiation having a wavelength which is selected as a function of object temperature and material.

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a2  
14. (Once Amended) An optical system as recited in claim 1, wherein said optical system further includes an airflow controller to provide air at a preselected temperature around said hot object to decrease a temperature gradient to said object to remove air density distortion.

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19. (Once Amended) An optical system for producing an image of the surface of a hot object, said object having a characteristic, dominant, self-emitted EMR spectrum, comprising:  
a video camera;  
an interference filter in association with said video camera for blocking substantially all of said self-emitted EMR spectrum; and  
a light source attached to said video camera configured to project electromagnetic radiation containing one or more wavelengths which are selected as a function of object temperature and material so that said one or more wavelengths are different than wavelengths contained in said self-emitted, dominant EMR spectrum such that the reflected component can be distinguished from said self-emitted EMR based on wavelength.

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a4  
20. (New) The optical system of claim 1 wherein said projected EMR impinges a predetermined surface area of said hot object, said EMR detector being configured to detect said spectrum component being reflected by said predetermined surface area of said hot object.

21. (New) An optical system for producing an image of the surface of an object, said object having a characteristic, temperature-dependent, dominant, self-emitted EMR spectrum, comprising:

an EMR source for projecting electromagnetic radiation toward said object;

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an EMR detector for selectively detecting a spectrum component of said projected EMR, said component being reflected by the surface of said object and being directed toward said EMR detector;

an airflow controller to provide airflow at a preselected temperature around said hot object to decrease a temperature gradient to remove air density distortion; and

wherein said reflected component of said projected EMR has a wavelength different than said self-emitted, dominant EMR spectrum such that the reflected component can be distinguished from said self-emitted EMR based on wavelength.

22. (New) The optical system of claim 21 wherein said preselected temperature is such that a temperature distribution of said hot object is not influenced adversely by said airflow.

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